JUNE 1927 NUMBER 245

THE UNIVERSITY OF NORTH CAROLINA RECORD

THE SCHOOL OF PHARMACY
1926-1927

ANNOUNCEMENTS FOR
1927-1928

THE UNIVERSITY OF NORTH CAROLINA PRESS
CHAPEL HILL, N. C.

CALENDAR

1927	
June 3-6	*Friday through Monday.* Commencement exercises.
June 9-July 20	Summer quarter, first term.
July 21-August 30	Summer quarter, second term.
Sept. 14-17	*Wednesday through Saturday.* Examinations for conditions and entrance examinations.
Sept. 19-22	*Monday through Thursday.* Freshman Week. Registration September 21 (Freshmen only).
Sept. 22	*Thursday.* Registration (all except Freshmen) for fall quarter.
Sept. 23	*Friday.* Class work for fall quarter begins.
Oct. 12	*Wednesday.* University Day exercises.
Nov. 23	*Wednesday.* Thanksgiving recess begins (1:00 p.m.).
Nov. 28	*Monday.* Thanksgiving recess ends (8:30 a.m.).
Dec. 16, 17, 19, 20	*Friday, Saturday, Monday, Tuesday.* Examinations for fall quarter. Registration of all except Freshmen and Sophomores.
Dec. 20 (afternoon)-Jan. 2, 1928	Christmas Recess.
1928	
Jan. 3	*Tuesday.* Registration completed for winter quarter (Freshmen and Sophomore).
Jan. 4	*Wednesday.* Class work for winter quarter begins.
Mar. 14-17	*Wednesday through Saturday.* Examinations for winter quarter. Registration of all except Freshmen and Sophomores.
Mar. 17-23	*Saturday afternoon through Friday.* Spring recess.
Mar. 24	*Saturday.* Registration completed for spring quarter (Freshmen and Sophomores).
Mar. 26	*Monday.* Class work for spring quarter begins.
June 4-7	*Monday through Thursday.* Examinations for spring quarter.
June 8-11	*Friday through Monday.* Commencement.

OFFICERS OF GOVERNMENT AND INSTRUCTION

THE UNIVERSITY

HARRY WOODBURN CHASE, Ph.D., LL.D., *President.*

CHARLES THOMAS WOOLLEN, *Business Manager.*

JULIUS ALGERNON WARREN, *Treasurer and Bursar.*

THOMAS JAMES WILSON, JR., Ph.D., *Registrar.*

THE SCHOOL OF PHARMACY

EDWARD VERNON HOWELL, A.B., Ph.G., *Dean.*

JOHN GROVER BEARD, Ph.G., *Secretary.*

THE ADMINISTRATIVE BOARD

EDWARD VERNON HOWELL, A.B., Ph.G., *Professor of Pharmacy.*

JOHN GROVER BEARD, Ph.G., *Professor of Pharmacy.*

WILLIAM DEBERNIERE MACNIDER, M.D., *Kenan Research Professor of Pharmacology.*

JAMES TALMADGE DOBBINS, Ph.D., *Associate Professor of Chemistry.*

EDWARD VERNON KYSER, Ph.G., Ph.C., *Associate Professor of Pharmacy.*

HENRY ROLAND TOTTEN, Ph.D., *Associate Professor of Botany.*

SPECIAL STAFF

EDWARD VERNON HOWELL, A.B., Ph.G., *Professor of Pharmacy.*

JOHN GROVER BEARD, Ph.G., *Professor of Pharmacy.*

FRANCIS PRESTON VENABLE, Ph.D., D.Sc., LL.D., *Kenan Professor of Chemistry.*

WILLIAM DEBERNIERE MACNIDER, M.D., *Kenan Research Professor* of Pharmacology.

*JAMES MUNSIE BELL, Ph.D., *Smith Professor of Chemistry.*

FRANK KENNETH CAMERON, Ph.D., *Acting Professor of Chemistry.*

JAMES TALMADGE DOBBINS, Ph.D., *Associate Professor of Chemistry.*

WILLIAM FLINT THRALL, Ph.D., *Associate Professor of English.*

EDWARD VERNON KYSER, Ph.G., Ph.C., *Associate Professor of Pharmacy.*

HENRY ROLAND TOTTEN, Ph.D., *Associate Professor of Botany.*

*Absent on leave, 1926-1927, on the Kenan Foundation.

FLOYD HARRIS EDMISTER, Ph.D., *Associate Professor of Chemistry.*

WILLIAM DOUGALD MACMILLAN, 3d, Ph.D., *Assistant Professor of English.*

MARION LEE JACOBS, Ph.C., M.Sc., *Instructor in Pharmacy.*

MILTON STANLEY BURT, *Assistant in Pharmacy.*

ROBERT GLENN KALE, *Assistant in Pharmacy.*

WILLIAM DORSEY WELCH, JR., *Assistant in Pharmacy.*

RALPH WINSTON WOODARD, *Assistant in Pharmacy.*

HISTORICAL SKETCH

In 1880 Dr. Thomas W. Harris was instrumental in establishing a Pharmacy School at the University in connection with the School of Medicine. Dr. Harris was Professor of Anatomy, Materia Medica and Pharmacy. The faculty of the new school consisted, in addition to Professor Harris, of Frederick W. Simonds, Professor of Botany and Physiology, and Francis P. Venable, Professor of Chemistry. The course in pharmacy extended over two sessions of five months each, and led to the degree of Graduate in Pharmacy (Ph.G.). The school was continued until the resignation of Doctor Harris in 1886, when it was abandoned completely. In the fall of 1889 the school was revived by Dr. Richard H. Whitehead, but again its career was cut short.

In March of 1897 the present School of Pharmacy was established, and Edward Vernon Howell, A.B., Wake Forest College, and Ph.G., Philadelphia College of Pharmacy, was elected Professor of Pharmacy and given charge of the school. At that time the school occupied the ground floor of the New West Building, which had been provided with laboratories, lecture rooms, an herbarium, and a reading room. The first lectures, offered in September of 1897, pertained to practical and theoretical pharmacy, materia medica, physiology, physics, general and analytical chemistry, and botany. The course of study extended over two sessions of nine months each and led, as did the courses in the initial school, to the degree of Graduate in Pharmacy (Ph.G.).

In the summer of 1912 the school was moved to Person Hall, a building containing ten rooms. In 1914 two new courses in pharmacy were added to the curriculum; one, a three-year course, led to the degree of Doctor of Pharmacy (P.D.); the other, also a three-year course, led to the degree of Pharmaceutical Chemist (Ph.C.). In 1917 the school was admitted to membership in the American Association of Colleges of Pharmacy, an organization founded for the promotion of pharmaceutical education. Member-colleges, in order to retain their membership, must maintain certain entrance and graduation requirements and must in other ways follow out general practices as determined by the Association.

In order to comply with the Association's newly made requirements, in 1925 the degrees of Doctor of Pharmacy and Pharmaceuti-

cal Chemist were abandoned, and the course of study leading to the degree of Graduate in Pharmacy was advanced from two to three years. A four-year course was also added leading to the degree of Bachelor of Science in Pharmacy (S.B. in Pharm.).

In the fall of 1925 the School of Pharmacy moved into the building formerly occupied by the Department of Chemistry. The school has gradually developed with respect to members of the faculty, equipment, apparatus, and attendance. The Pharmaceutical library has been made valuable by many historical and modern books on pharmacy and its allied branches and by bound volumes of proceedings and journals, either given by friends or purchased by the University.

SITUATION AND GENERAL ADVANTAGES

The University is situated at Chapel Hill, twelve miles from Durham and thirty-eight miles from Raleigh. It may be reached by rail from University Junction, or by the automobile lines which maintain regular and frequent schedules from Durham. The site of the University is on a promontory of granite, belonging to the Laurentian system, about three hundred feet above the sandstone formation to the east that was once the bed of a great body of water. It is near the center of the state, midway between the mountains and the sea, with sufficient elevation to insure healthful and pleasant working conditions. The University owns contiguous to the campus five hundred acres of forest lands, partly laid off in walks and drives. The present buildings of the University, forty-four in number, range in age from the Old East dating from 1793 to the Woman's Building which was put into service in September, 1925. A model central power plant provides heat, water and electric lights for all the buildings. The infirmary is a modern building completely equipped and under the direction of the University physician. Records prove that health conditions at the University are excellent.

THE COLLEGE YEAR

The college year is divided into fall, winter, and spring quarters of approximately twelve weeks each, and a summer quarter divided into two terms of about six weeks each. There is a Thanksgiving recess of three days, a Christmas recess of approximately two weeks, and an Easter recess of seven days.

RELIGIOUS INFLUENCES

Through the coöperation of all concerned, religious influences of unusually effective character surround the University student. Chapel exercises, conducted in turn by the ministers of the town, are held in Memorial Hall every week-day morning, except Saturday, at ten-thirty o'clock. The Young Men's Christian Association, to which the University makes annual contributions, is of great value in the life of the campus. Its Bible study classes enroll each year a large proportion of the student body; its regular religious services, its individual contacts, and its participation in the general University program of student welfare, are among the activities that make it an indispensable part of the University organization.

The large denominations of the state have erected at Chapel Hill modern and adequate church plants. Within the past few years Presbyterians, Baptists, Episcopalians and Methodists have rebuilt on a large scale. The Chapel Hill churches are manned by an effective and coöperative group of pastors, are all located in close proximity to the campus, and play a very large and genuine part in the life of the University.

DISCIPLINE

The University endeavors to make young men manly and self-reliant, and to develop character by educating the conscience. The faculty may, at their discretion, admonish, suspend, or dismiss students for neglect of duty, or for misconduct.

PHYSICAL TRAINING

Hearty encouragement is given to athletic sports and to all kinds of physical culture. The Emerson Athletic Field, the gift of Mr. Isaac Emerson, of Baltimore, furnishes ample facilities for football and baseball, and the track is admirably adapted for running and general track athletics. Two new fields for general athletic purposes have been completed recently and put into use. These fields lie directly to the east of Emerson Field and serve the Freshmen and other class teams. More than fifty tennis courts are located on the campus. The Kenan Memorial Stadium, given by William Rand Kenan, '94, is to be completed by November, 1927.

Systematic exercise under skilled instructors is offered to all students in the University.

MEDICAL ATTENTION

In order to secure responsible and efficient medical advice and to provide proper attention for the student during sickness, the University employs a practicing physician and maintains a well appointed infirmary. The Infirmary is equipped with all necessary conveniences and comforts, is under the immediate supervision of the University Physician, and is provided with two experienced nurses. At the discretion of the University Physician a student may be admitted to its wards, and for such services as may be rendered by the staff no charges are made, but should any additional service (consultation, special nurses, operations requiring the attendance of a trained surgeon) recommended by the attending physician and approved by the parent or guardian be necessary, the student will be required to pay for such services.

The Pharmaceutical Laboratories

Pharmacy Hall, used exclusively for pharmaceutical instruction, is a three story brick structure containing thirty-five rooms with a total floor space of 22,000 sq. ft. Adjoining the arboretum, the drug garden, the botany building; located within convenient reach of the buildings for chemistry, medicine, and administration; well ventilated, lighted, heated, and equipped, Pharmacy Hall is admirably adapted to its purposes.

The ground floor contains a lecture room and four laboratories for manufacturing pharmacy, three apparatus and stock rooms for all courses, machine room for industrial pharmacy a pharmacological laboratory, toilets, etc.

The main floor is made up of the library containing several thousand books and bound journals; the museum, which is well stocked with exhibits illustrating drugs, chemicals, and processes; laboratories for pharmaceutical chemistry; offices and private laboratories for the teaching staff, an auditorium, the scale room, and two research rooms.

The top floor contains a materia medica museum and lecture room, three laboratories for dispensing, toxicology, general pharmacy, and medical pharmacy, three stock rooms, a research laboratory, and an office.

The Biological Laboratories

The biological building, Davie Hall, is occupied by the departments of Zoölogy and Botany. The building lies to the east of the New East and adjoins the Arboretum. It is faced throughout with light brick.

The botanical wing of Davie Hall is a fireproof building, 39 feet wide by 80 feet long, with three full floors and an attic. The first floor contains a museum for botanical specimens, potted plants, etc., a professor's laboratory, and a large laboratory lighted on three sides by twenty windows and designed to seat twenty students. This is especially for the teaching of pharmaceutical and economic botany.

The second floor has one large laboratory lighted by twenty-four windows and providing for the same number of students. General and systematic botany are taught in this room. On this floor there are also a large herbarium for the preservation of dried plants and a storeroom.

The third floor is given up mainly to advanced students and research work, chiefly in fungi. There is one laboratory on the north end lighted on three sides and providing for sixteen students. There are also two private laboratories for professors, the botanical library, and a seminar room, as well as small storerooms, etc.

Important adjuncts to the Department of Botany are the Arboretum, drug garden, greenhouse, and propagating grounds. The greenhouse has recently been added. It is a commercial range 15 feet wide by 80 feet long and it will be of great help to the department in making available at all times plants for instruction and research.

The Chemical Laboratories

In the fall of 1925 the department of Chemistry took up its work in Venable Hall of Chemistry, named in honor of Dr. Francis Preston Venable. The building is about 200 feet square, and covers nearly an acre. The front of the building, three stories high, contains library, five classrooms, general office, museum, and laboratories of physical and electro-chemistry. The south wing, two stories high, contains 38 small rooms for staff offices and private laboratories, thus providing each member of the staff and each graduate student with an individual laboratory. The court within the arms of these two sections contains a one-story structure, with factory, sawtooth

roof, and has twelve large laboratories for general chemistry, analytical chemistry, organic chemistry and a storeroom. Industrial chemistry is provided with a room of about 1,600 square feet area and 25 feet high. It has a traveling crane overhead to lift and move about apparatus of semi-commercial size. Adjoining this room are four small rooms for control work, a dark room, a transformer room, and rooms for the control of the ventilating system. At each desk in the laboratories are outlets for gas, air, steam, water, and electric power, and an opening into the exhaust ventilating ducts. A large lecture room, seating 256, is lighted from above and has special ventilation.

The laboratories are well equipped with apparatus for the regular courses and for research work of instructor and students, and the library contains a most excellent collection of books and journals which are indispensable in research work.

The Pharmacological Laboratories

The laboratory rooms for pharmacology are in the Medical Building, Caldwell Hall, which was completed in 1912. Each of the larger laboratories is equipped for forty students, while smaller rooms adjoining are employed for the incidental needs of the courses and the students. A large room in the basement houses the animals used in experimental pharmacology and for biological drug essays.

THREE-YEAR COURSE

Beginning in September, 1925, every college holding membership in the American Association of Colleges of Pharmacy increased its standard course of study from two to three years. This change was prompted by a desire fully to meet the educational responsibilities that are in increasing manner being transferred to schools by practicing druggists who no longer have the time to give practical instruction to their apprentices.

This school is a member of the above-named association, and is, therefore, subject to the new regulation. The increased requirement affects *all* new students registering on and after September, 1925, but it does not apply to students who were registered in the University for pharmacy previous to the date of the rule's enforcement.

Prospective students should bear in mind the fact that the three-year course of study is now required in the pharmacy schools of all

states adjoining North Carolina, and is in effect as well in the better colleges and universities all over the country. Just as medical and dental schools found it necessary some years ago to expand their curricula so as to cover four years, so did leading colleges of pharmacy deem it essential to extend their time of study by an additional year.

It is possible under the more extended course to increase the number of studies in which pharmacy students should receive instruction, and also possible to devote more time to such basic subjects as materia medica, chemistry, etc., that have heretofore been given less completely than they should have been because of time limitations.

Beginning also in September, 1925, the School of Pharmacy is offering a four-year course of study leading to the degree of Bachelor of Science (B.S.) in Pharmacy. This course was introduced to meet the wishes of an increasing number of students who desire a broader education than a purely technical course furnishes, and also to provide opportunity for students who will eventually study medicine to gain a desirable knowledge of pharmacy and its allied branches while obtaining the college credits necessary for entrance into the medical school. Still another object of the course is to train students for positions in manufacturing pharmaceutical houses as analysts and research workers, and for service in governmental bureaus.

REQUIREMENTS FOR ADMISSION

Candidates for the degree of B.S. in Pharmacy must present for entrance the following credits:

English	3	or	4 units
American History			1 unit
Mathematics (Algebra, Plane Geometry)	2.5	or	3 units
Select One { German / French }			2 units
Electives			
Total			15 units

Note, that the requirements for admission to the B.S. in Pharmacy call for either French or German.

Candidates for the degree of Ph.G. must on entering be at least seventeen years old, and must have completed a high school course of study or must present evidence of 15 units. They may, however, enter a one-year special course without this prerequisite.

Subjects for Entrance

The complete list of subjects accepted for entrance with the credit that may be secured in each subject is as follows:

English	3 or 4 units
History	4 units
Mathematics	4 units
Greek	3 units
Latin	4 units
French	3 units
German	3 units
Spanish	3 units
Botany	1 or 0.5 unit
Chemistry	1 or 0.5 unit
Physics	1 or 0.5 unit
Physiology	0.5 unit
Zoölogy	1 or 0.5 unit
General Science	1 or 0.5 unit
Physiography	1 or 0.5 unit
Drawing	1 unit
Civics	0.5 unit
Economics	0.5 unit
Vocational subjects	
Commercial Geography	0.5 unit
General Agriculture	2 units
Bookkeeping	1 unit
Commercial Arithmetic	1 unit
Stenography and Typewriting	1 unit
Manual Training	2 units

NOTE, that as many as four (4) units in English, four (4) units in history, and two (2) units in agriculture may be accepted. This amount of credit will be allowed only when the Registrar is satisfied that the work done in these subjects at any given school is of a superior order.

NOTE FURTHER: One (1) full unit in any of the sciences will be allowed only when satisfactory work is done in the laboratory as evidenced by the notebook; otherwise only one-half (.5) unit will be allowed. In vocational subjects not more than a total of three (3) units will be credited.

ADMISSION OF WOMEN

Opportunity is offered in pharmacy to women who are inclined toward a scientific vocation. The salaries paid and the character of the work are such as to make the field of retail pharmacy a particularly attractive one for them. The University, being a co-educational institution, welcomes women students and offers them every facility to make their campus life pleasant. Upon application to the Secretary of the School of Pharmacy, a prospective woman student may obtain detailed information concerning the opportunities she will find in pharmacy.

STANDING

After the close of each term reports of the standing of all students in all their studies are sent to parents or guardians. The reports are based upon the following systems of marking:

Grade A, Excellent.
Garde B, Good.
Grade C, Fair.
Grade D, Barely passed.
Grade E, Conditioned.
Grade F, Failed.
Grade I, Work incomplete.

A student must attain a grade of D to pass in any study. Grade E indicates that the student is conditioned but may remove the deficiency by special examination, as explained on page 16. Students receiving grade F must repeat the study to receive any credit for the same.

No student in pharmacy who fails to pass at least sixty per cent of his courses shall be readmitted except by a special vote of the Administrative Board of the School.

EXPENSES

The University reserves the right to make, with the approval of the proper authorities, changes in any fees at any time.

Tuition and Other Fees for Each Quarter

	Residents of N. C.	Nonresidents of N. C.
Tuition	$28.34	$36.67
*Matriculation	12.00	12.00
Publications	1.66	1.66
Laundry	8.50	8.50
Total each quarter	$50.50	$58.83

Laboratory Fees: Every student taking a laboratory course must pay, in addition to his tuition fee, a small fee for power or materials used in the laboratory. The fees for the various laboratory courses are as follows:

Botany

1	$4.00	10-11	$4.00 a quarter

Chemistry

1ab	$ 5.00 a quarter	41ab	$10.00 a quarter
31	10.00	61bc	10.00 a quarter

*This fee includes the gymnasium fee, the library fee, the fee for attendance of the University Physician, the fee for debates.

PHARMACOLOGY

32	$ 5.00

PHARMACY

8	$ 5.00	36-37	$ 7.00 a quarter
15-16	5.00 a quarter	38	7.50
25	3.00	40	10.00
26	3.00	41	5.00
27	5.00	43-44	7.00 a quarter
28	10.00		

TRANSCRIPTS OF RECORD. One transcript will be furnished without charge. Additional transcripts will be furnished only upon payment of $1.00 for each copy.

DIPLOMA. The fee for a diploma is $5.00, payable one week before the date of the award of diplomas at commencement or at the end of the Summer School.

Board

Excellent board is furnished at Swain Hall for $22.00 a month. A few students can earn their board by waiting on the tables.

Board without room can be obtained in the town from $22.50 to $35.00 a month.

Dormitory Accommodations

Accommodations for nearly thirteen hundred students are available in the University dormitories.

All rooms in the dormitories are completely furnished. Students will, however, provide their own pillow, bed linen (for single beds), and towels.

Room rent ranges from $5.00 to $9.50 a month for each occupant, the price depending upon the location of the room. This charge includes light, heat, and service.

PRIZES AND SCHOLARSHIPS

THE BRADHAM PRIZE, offered by Mr. C. D. Bradham, of New Bern, N. C., will be given to the student making the highest general average during the three years of study leading to Ph.G.

THE KYSER PRIZE. A membership in the American Pharmaceutical Association for one year will be awarded to the student attaining the highest average in laboratory work during the first year of study.

LEHN AND FINK GOLD MEDAL. This medal is given annually by Lehn and Fink of New York City, for excellence in research work.

Howell Scholarship. A scholarship of $60.00 will be awarded for meritorious work in the second year.

Richardson Scholarships. Three scholarships of $75.00 each for tuition have been established by Mr. H. S. Richardson, of Greensboro. These scholarships are awarded to members of the first, second, and third year classes for excellence in scholarship.

Phi Delta Chi Scholarship. Beginning at commencement 1927, the Phi Delta Chi Fraternity will award annually a scholarship of $60.00 for tuition to the rising third-year student who has made the highest average during the two previous years of study.

Fairchild Scholarship. Mr. Samuel W. Fairchild, of New York City, offers annually a scholarship amounting to $300.00 in cash to the high school graduates of the United States who wish to follow Pharmacy as a vocation.

The Fairchild Scholarship will be awarded on the basis of a competitive examination given to candidates who are high school graduates and who have successfully finished their second year's work in a school or college of pharmacy or department of pharmacy of a university which is a member of the American Association of Colleges of Pharmacy. Each school, college, or department of pharmacy will be allowed and be limited to two candidates. Application for further information concerning this prize should be made to the Dean of the School of Pharmacy.

ASSIGNMENT OF ROOMS

The rooms in the University dormitories are assigned to students by the cashier in the order of application, subject to the special regulations given below.

The University reserves the right to require any student whom for any reason it considers an undesirable tenant to vacate a room in the University buildings.

All occupants are required to sign a contract, subject to the following special rules:

In order to retain his room for the next session, a student must file with the cashier before June 1, a room contract properly signed and a deposit of $5.00. By December 15 another deposit of $5.00 must be made in order to retain the room for the winter and spring quarters. Double rooms must be signed for by both intending occupants. The

rooms thus signed for will be retained until September 1 and January 1, respectively, when balance of rent is due. The $5.00 deposit will be forfeited in case the signer or signers do not themselves occupy the room and pay the full rent. Rooms not signed for or made vacant by failure to pay at the proper date will be assigned in the order of application.

The right to occupy a room is not transferable and terminates with the expiration of the lease. Any attempt on the part of an occupant of a room to sell or transfer his right to occupancy shall be deemed a fraudulent transaction. The penalty for violating this rule shall be the forfeiture of the room by the new lessee.

The occupant of a room will be held directly responsible for any damage done to the furniture in his room or to the room.

No dogs shall be kept in the University dormitories. Breach of this regulation leads to forfeiture of the room.

EXAMINATIONS

Regular written examinations are required at the end of each quarter in all courses except those the nature of which is such as to make written examinations unnecessary.

Special examinations for students who have been officially excused from regular examinations on account of sickness or have been absent on account of some necessary cause may be held at suitable times fixed by the Registrar and the instructors concerned. Such examinations must be taken within twelve (12) months of the date of absence.

Special examinations may be taken by students who have received the condition grade (E) at the period of the special examinations in the week preceding the opening of the session in September.

Provided he has no conflict with a course regularly taken by him in the term such a student may take an examination at the *first* regular term examination in the same subject after he has made the grade E.

Under no circumstances may a student stand a special examination to remove a condition grade (E) between the first and the last class days in any quarter.

To be entitled to take a special examination in term, or at the September period, or at a regular term examination period, the student is required to file with the Registrar at least one week prior

to the examination period a written notice that he desires to take such examination.

Final examinations except in laboratory practice may not be held at any times other than those specified in the preceding regulations.

Students absent from an examination without an official excuse or present and failing to submit examination papers are reported "absent." This mark is equivalent in every respect to grade F or failure, and is so reckoned in the office of the Registrar.

Each student is required to subscribe his name to the following pledge or its equivalent on every paper: I hereby certify that during this examination I have neither given nor received aid. The instructor should not report a grade for any student whose examination paper lacks this pledge.

Papers handed in at a special examination by students who have been officially excused from the regular examination will be graded. All others will be marked "passed" or "failed."

Schedules of examinations at the ends of the terms and in September are to be so arranged that examinations set for the last day of the period shall be set for the first day of the next period.

THE UNIVERSITY OF NORTH CAROLINA BRANCH OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

The University of North Carolina Branch of the American Pharmaceutical Association was organized in the fall of 1922 in response to the need of the students for a local society devoted to the scientific and ethical development of pharmacy as a profession. Eighteen meetings are held during the year at which many lectures are presented by men well known in American pharmacy. The annual dues are $5.00. This fee covers one year's membership in both the local branch and the national association, as well as a copy of the official year book. There are nearly two hundred members of the Branch in North Carolina.

DRUG STORE EXPERIENCE

The North Carolina Board of Pharmacy requires of candidates for license to practice pharmacy evidence of not less than forty-eight months of practical drug store experience. However, it allows the work done in the pharmaceutical laboratories to count in lieu of drug store experience, such credit to be limited to twenty-four months. Up to this limit the college work counts month for month.

COURSES OFFERED

For the Degree of Graduate in Pharmacy

In order to be recommended for the degree of Graduate in Pharmacy the student must have completed the three-year course of study outlined below. Work done in some other recognized school of pharmacy may be accepted for the first two years of this course only.

A student must obtain satisfactory marking in attendance, making a grade of D or better in each course, and must submit a satisfactory thesis.

For the Degree of Bachelor of Science in Pharmacy

A four-year course leading to this degree is offered.

A student who has completed one or more years of accredited work in a recognized school of pharmacy and submits satisfactory evidence of having completed the entrance requirements and courses equivalent to those prescribed in the curriculum required for the degree of S.B. in Pharmacy, may be admitted with advanced standing and proceed for this degree.

Upon the completion of the curriculum prescribed for the degree of Bachelor of Science in Pharmacy, provided he has elected Zoölogy 1 and 2 in his senior year, a student may enter a school of medicine or pursue courses of study leading to the master's or doctor's degree with Chemistry as his major subject.

METHOD OF NUMBERING COURSES IN PHARMACY

The first numeral in the course number indicates which year in the schedule the course is pursued: for example, Pharmacy 15 is a subject taught in the first year; Pharmacy 25 in the second year, etc.

COURSE LEADING TO THE DEGREE OF GRADUATE IN PHARMACY

First Year

Fall Quarter: Chemistry 1a, English 1, Botany 10.

Winter Quarter: Chemistry 1b, Botany 11, Pharmacy 11, Pharmacy 15.

Spring Quarter: Chemistry 31, English 2, Pharmacy 12, Pharmacy 16.

Second Year

Fall Quarter: Chemistry 41a; Pharmacy 20, Pharmaceutical Chemistry 25, Pharmaceutical Chemistry 26.

Winter Quarter: Chemistry 41b, Pharmacy 21, Materia Medica 20.

Spring Quarter: Pharmacy 28, Pharmaceutical Chemistry 27, Materia Medica 21, Pharmacology 20.

Third Year

Fall Quarter: Pharmacy 30, Pharmacy 32, Materia Medica 30, Pharmacology 32.

Winter Quarter: Pharmacy 33, Pharmacy 34, Pharmacy 35, Pharmacy 39, Pharmaceutical Chemistry 36.

Spring Quarter: Pharmacy 31, Pharmacy 38, Pharmaceutical Chemistry 37, Elective (to be approved by the school).

COURSE LEADING TO THE DEGREE OF S.B. IN PHARMACY

FRESHMAN YEAR

Fall Quarter: Chemistry 1a, English 1, Botany 10.

Winter Quarter: Chemistry 1b, Mathematics 1, Botany 11.

Spring Quarter: Mathematics 2, Chemistry 31, Chemistry 13, Pharmacology 20.

SOPHOMORE YEAR

Fall Quarter: Chemistry 41a, *French 3 or German 3, English 3.

Winter Quarter: Pharmacy 11, Pharmacy 15, Materia Medica 20, Chemistry 41b, *French 4 or German 4.

Spring Quarter: Pharmacy 12, Pharmacy 16, Materia Medica 21, English 4 or 5.

JUNIOR YEAR

Fall Quarter: Pharmacy 20, Materia Medica 30, Pharmacology 32, Physics 1.

Winter Quarter: Pharmacy 21, Physics 2, Chemistry 61b.

Spring Quarter: Chemistry 61c, Pharmacy 28, Pharmacy 38. Pharmaceutical Chemistry 27.

*If neither French nor German is offered for entrance the elementary courses 1 and 2 in one language must be taken in the University without credit. Note that this curriculum requires French or German through course 4.

SENIOR YEAR

Fall Quarter: Pharmacy 30, **Economics 1 or Psychology 1, Pharmaceutical Chemistry 25, Pharm. Chem. 26.

Winter Quarter: Pharmaceutical Chemistry 40, **Economics 2 or Psychology 2, ***Pharmacy 43 or Bacteriology or Zoölogy 1.

Spring Quarter: Pharmacy 31, Pharmaceutical Chemistry 41, ***Pharmacy 44 or Bacteriology or Zoölogy 2, Pharmacy 49.

COURSES OF INSTRUCTION

Pharmacy

11-12. THEORY AND PRACTICE OF PHARMACY.
This course consists of lectures upon the following subjects, with practical demonstrations and the employment of proper apparatus whenever necessary: metrology, comminution, heat evaporation, distillation, sublimation, fusion, calcination, granulation, oxidation, reduction, etc.; colation, filtration, decolorization, clarification, precipitation, etc.; maceration, expression, infusion, decoction, etc.; percolation and study of the following: waters, syrups, honeys, glycerites, mucilages, mixtures, spirits, elixirs, liniments, collodions, tinctures, wines, vinegars, and fluid-extracts. Textbook: Remington's *Theory and Practice of Pharmacy. Five hours a week, winter and spring quarters.* Professor Howell.

15-16. OPERATIVE PHARMACY.
This course is designed to demonstrate the various operations outlined in Pharmacy 11-12, and to drill the student in the correct preparation or manufacture of all of the classes of pharmaceuticals as outlined in the Pharmacopoeia. He is required to make under the direction of the instructor those preparations which enter into prescriptions and is taught the correct uses of the different apparatus required in the practice of pharmacy. Textbook: Remington's *Theory and Practice of Pharmacy. Lectures and laboratory. Four hours a week, winter and spring quarters. Laboratory fee, $5.00 a quarter.* Professor Kyser and Assistants.

20-21. THEORY AND PRACTICE OF PHARMACY. Prerequisite, Pharmacy 11-12.
The official forms and preparations of drugs are taken up in detail. Beginning with the inorganic compounds, the salts are considered with regard to their commercial qualities and pharmaceutical uses and preparations. The organic compounds are studied, commencing with the salts of the organic acids and passing to the natural and organic compounds. *Five hours a week, fall and winter quarters.* Professor Howell.

28. DISPENSING PHARMACY.
A practical course concerned with the operations and processes involved in prescription-filling. At the outset, students demonstrate for themselves the selection and correct use of the various apparatus employed in compounding formulae, after which they are drilled carefully in proper procedure and are instructed thoroughly in the method of mixing the

**The subject chosen in the fall quarter must be continued in the winter quarter.
***The subject in the winter quarter must be continued in the spring quarter.

materials that enter into physician's recipes. Incompatibilities are considered, first, as to probable occurrences, and second, as to prevention or correction. The common types are demonstrated and every probable kind is given study. No fixed number of actual prescriptions is required to be filled, but the student is kept at the task of compounding until he becomes competent to serve as a practical prescriptionist. Not only is the usual technique of compounding dwelt upon, but there also enters into the course a consideration of such matters as eutectic mixtures, colloidal solutions, viscocity, etc. After prescriptions are filled, they are checked, labeled, properly packed, and then priced according to the accepted scale of calculation. During the progress of the course, emphasis is laid upon posture, neatness, dexterity, and accuracy. Working texts: Beard's *Guide to Dispensing Practice*, Remington's *Practice of Pharmacy. Lectures and laboratory, nine hours a week, spring quarter. Laboratory fee, $10.00.* Professor Beard.

30. THEORY AND PRACTICE OF PHARMACY.
A study of the preparation and uses of biological preparations, serums, vaccines, toxins and antitoxins, and animal drugs. *Five hours a week, fall quarter.* Professor Howell.

31. THEORY AND PRACTICE OF PHARMACY.
A review of the tests and assays of the U. S. P. together with important diagnostical reagents and clinical tests. *Five hours a week, spring quarter.* Professor Howell.

32-33. COMMERCIAL PHARMACY.
In presenting this practical course, the dominant motive is to train students to think in terms of drug store ownership rather than clerkship, and to think independently. The class is led progressively through the various phases of retail drug store operation, beginning with the location of a store site and ending with lectures on pharmaceutical jurisprudence by members of the Law School faculty. Each student is expected to subscribe for three leading drug journals and to purchase at least two reference books on retail store management. Text-book: O'Connor's *Commercial Pharmacy. Lectures and recitations. Three hours a week, fall and winter quarters.* Professor Beard.

34. PHARMACEUTICAL ARITHMETIC.
Beginning with a thorough study of the metric system, this course progresses through transposition, ratio, percentage, and alligation, after which the student is drilled in problems having to do with chemical reactions. Follows then a consideration of the arithmetic met with in commercial transactions, such as cost, overhead, profit, and sales, percentage, turnover, mark-up, etc., etc. It is the purpose of the course so to relate arithmetic to pharmacy as not only to make certain that students can solve quickly and correctly the scientific problems met with in manufacturing and dispensing, but also that they may have mastery over the merchandising calculations that now play so prominent a part in retail pharmacy. Text-books: Sturmer's *Pharmaceutical Arithmetic. Three hours a week, winter quarter.* Professor Beard.

35. PHARMACEUTICAL LATIN.
A certain modicum of Latin is absolutely essential to the understanding of pharmaceutical terminology and to the proper handling of prescriptions. It is the purpose of this course to provide exactly that modicum. The course is divided into two parts. The first consists of twenty lectures and recitations presenting in progressive arrangements

the necessary instruction in forms and syntax, and excluding everything which, however desirable and helpful, is not of immediate practical use to the pharmacist. The second part is devoted to word classifications, abbreviations in common use, and to analyzing pharmaceutical terminology and prescriptions as ordinarily written. Text-book: Howe and Beard's *Latin for Pharmacists. Three hours a week, winter quarter.* Professor Beard.

38. INDUSTRIAL PHARMACY. Prerequisite, Pharmacy 30, Pharmaceutical Chemistry 36-37 or Chemistry 61bc.

This course is concerned with the commercial manufacture of the acids, heavy and fine chemicals, pharmaceutical specialties, and other products which are utilized in the manufacture of various pharmaceutical preparations. Special consideration is given to plant location, construction, machinery, raw materials, etc. Business and factory management including salesmanship, order routing, standardization, chemical control methods, packages, and shipping are also given consideration. References: Roger's *Industrial Chemistry*, and *United States Dispensatory. Lectures, five hours a week, laboratory, six hours a week, spring quarter. Laboratory fee, $7.50.* Professor Kyser and an Assistant.

39. RESEARCH. Prerequisite, Pharmacy 21-30.

Direction in the investigation of some subject of interest in pharmacy. The result of the investigation may be presented in the form of a thesis. Professors Howell, Beard, Kyser, Totten, Mr. Jacobs.

49. RESEARCH. Prerequisite, Pharmaceutical Chemistry 40 and Pharmacy 30.

Advanced research work as a partial requirement for the degree of S.B. in Pharmacy. Professors Howell, Beard, Kyser, Mr. Jacobs.

Pharmaceutical Chemistry

25. TOXICOLOGY.

The chemical and physiological behavior of poisons; first aid, antidotal and recuperative treatment for the various types of poisoning. The separation and identification of poisons in foods and animal tissues. The laws regulating the sales of poisons are also considered. *Lectures, two hours a week, laboratory, two hours a week, fall quarter. Laboratory fee, $3.00.* Professor Kyser and Mr. Jacobs.

26. URINARY ANALYSIS.

By means of laboratory work, supplemented by lectures, the student is drilled in making qualitative and quantitative analyses of urine. The phenomena of urine secretions and elimination and the physiological and pathological constituents of urine, with exhaustive tests for determining the presence or absence of these constituents, are fully dwelt upon. In addition, the student is taught to select and arrange the apparatus required to make urine analyses in the drug store. Text-book: Hawk's *Physiological Chemistry. Lectures, two hours a week, laboratory, two hours a week, fall quarter. Laboratory fee, $3.00.* Mr. Jacobs.

27. PHARMACEUTICAL ANALYSIS. Prerequisite, Chemistry 41ab.

A laboratory course supplemented by lectures designed to instruct the student in the Pharmacopoeial methods of the identification and determination of the purity of the official drugs and chemicals. Textbook: *United States Pharmacopoeia. Lectures, three hours a week, laboratory, four hours a week, spring quarter. Laboratory fee, $5.00.* Professor Kyser and an Assistant.

36-37. ORGANIC PHARMACEUTICAL CHEMISTRY. Prerequisite, Chemistry 41ab.

The organic pharmaceuticals of the aliphatic and aromatic series. Lectures and laboratory. *Five hours a week, winter and spring quarters. Laboratory fee, $7.00 a quarter.* Mr. Jacobs.

40. INDUSTRIAL PHARMACY. Prerequisite, Chemistry 61bc.

The manufacture of volatile oils, aromatic chemicals, and perfumer's raw materials. Consideration is given to the art of perfuming and the manufacture and analysis of cosmetics and general toilet requisites. Patents, trademarks, copyrights, advertising, and package designing are also considered. *Lectures, five hours a week, laboratory, six hours a week, winter quarter. Laboratory fee, $10.00.* Professor Kyser and an Assistant.

41. INDUSTRIAL PHARMACY. Prerequisite, Chemistry 41ab.

A technical course in the commercial methods of analysis of crude drugs, pharmaceuticals, trade products, and toilet preparations. References: *United States Pharmacopoeia* and Allen's *Commercial Organic Analysis. Five hours a week, spring quarter. Laboratory fee, $5.00.* Professor Kyser.

43-44. ORGANIC PHARMACEUTICALS. Prerequisite, Pharmaceutical Chemistry 36-37 or Chemistry 61bc.

Methods of the organic pharmaceutical industries and the recent advances in organic medicinals. Lectures, conferences, and laboratory. *Five hours a week, winter and spring quarters. Laboratory fee, $7.00 a quarter.* Mr. Jacobs.

Materia Medica and Pharmacology

20-21. MATERIA MEDICA. Prerequisite, Botany 10-11.

The individual drugs of the United States Pharmacopoeia and the National Formulary are considered from the standpoint of their origin, history, appearance, structure, active principles, chief medicinal properties, official preparations, and doses. These drugs are grouped and studied according to the families to which they belong. Later they are classified into therapeutic groups, based on their action, i.e., whether they are stimulants, alteratives, irritants, astringents, etc. The subject is amply illustrated from the large collection of the School, which includes all the drugs of the Pharmacopoeia, as well as many unofficial plant parts; by means of colored plates and pictures; and from the library, which contains a large number of valuable books on the subject. Text-book: Mansfield's *Materia Medica and Pharmacognosy. Lectures and recitations. Five hours a week, winter and spring quarters.* Professor Beard.

30. MATERIA MEDICA. Prerequisite, Materia Medica 20-21.

This course is to be considered as advanced Materia Medica 20-21. In addition to a more comprehensive study of vegetable and chemical drugs, consideration is given to the animal and biological products which are used as drugs. Preliminary to the study of serums and vaccines, the student is taught something of the form, occurrence, habits, and resistance of the more common pathological organisms, the activities of which make biological products necessary. *Lectures and recitations. Five hours a week, fall quarter.* Professor Beard.

20. PHARMACOLOGY.

A study of the functions of the normal human body and a consideration of how these functions are modified by the action of drugs. Labo-

ratory experiments are conducted by the instructor to demonstrate the more important physiological reactions of the lower animals, frogs, turtles, and cats. *Five hours a week, spring quarter.* Professor MacNider.

32. PHARMACOLOGY. Prerequisite, Materia Medica 20-21. Pharmacology 20.

This course is concerned with the physiological and therapeutic action of drugs both upon man and upon lower animals. Prior to this work the student has completed Materia Medica 20-21 which is concerned with the study of the physical and chemical properties of drugs, their preparations, dosage, and a brief statement of their effect. This course in Pharmacology is intended to amplify and give in a more detailed fashion an understanding of the way in which the drug acts in normal and in toxic quantities. A consideration of the biological standardization of drugs is also a part of this course. Text-book: Bastedo's *Materia Medica, Pharmacology, and Therapeutics. Lectures and laboratory, seven hours a week, fall quarter. Laboratory fee, $5.00.* Professor MacNider and an Assistant.

Botany

10. GENERAL BOTANY.

An introduction to the structure, classification, and activities of plants, with life history studies from the principal groups, including algae, bacteria, fungi, mosses, ferns, and the seed plants. Instruction in this course is not confined to the lecture room and laboratory, but advantage is taken of the rich local flora and of the arboretum with its drug garden. Through field trips the student learns to use keys and to make collections, and becomes acquainted with the living plants, especially with the trees, shrubs, and drug plants. *Four lectures and four laboratory hours a week, fall quarter. Laboratory fee, $4.00.* Professor Totten and Assistants.

11. PHARMACEUTICAL BOTANY AND PHARMACOGNOSY. Prerequisite, Botany 10.

A study of drug plants; the structure of their parts and contents; the localization and identification of crystals, starches, mucilages, gums, oils, resins, glucosides, alkaloids, etc.; microscopical study and identification of crude and powdered drugs and their adulterants. *Lectures with laboratory work. Four lectures and four laboratory hours a week, winter quarter. Laboratory fee, $4.00.* Professor Totten and Assistants.

Chemistry

1ab. GENERAL DESCRIPTIVE CHEMISTRY.

An introduction to the study of the principal non-metallic and metallic elements and their compounds. Lectures with laboratory work. *Four lectures and four laboratory hours a week, fall and winter or winter and spring quarters. Laboratory fee, $5.00 a quarter.* Professors Venable, Cameron, Edmister, Miss Morgan, Messrs. Hager, Thomas, Bass, McCluer, Gilreath, Davenport, Greene.

13c. CHEMISTRY OF FOODS. Prerequisite, Chemistry 1ab.

Digestion processes, and the composition, preservation, adulteration, and industrial production of foods. *Five hours a week, spring quarter.* Professor Venable.

31. QUALITATIVE ANALYSIS. Prerequisite, Chemistry 1ab.

Laboratory work and lectures. *Three lectures and six laboratory hours a week, fall or spring quarter. Laboratoy fee, $10.00.* Professor Dobbins, Messrs. Pickett, Norton, Addlestone.

41ab. ELEMENTARY QUANTITATIVE ANALYSIS. Prerequisite Chemistry 31.

Gravimetric and Volumetric Analysis. Laboratory work, lectures, and stolchiometric exercises. *Three lectures and six laboratory hours a week, fall and winter quarters. Laboratory fee, $10.00 a quarter.* Professor Dobbins, Mr. Bullitt.

61bc. ORGANIC CHEMISTRY. Prerequisite, Chemistry 31 or 35.

Required of students in the S.B. I., S.B. IV., S.B. VI., and Pre-medical courses. *Three lectures and six laboratory hours a week, winter and spring quarters. Laboratory fee, $10.00 a quarter.* Professor Wheeler, Mr. Bost.

English

1. FRESHMAN ENGLISH. Required of all Freshmen except those in the School of Engineering.

Intensive reading chiefly in prose; extensive reading among selected books in the Library; training in reading through a progressive series of exercises; training in writing through exercises in sentence-revision and through frequent written compositions. Fortnightly conferences. *Five hours a week, every quarter.* Professors Thrall (Chairman), Jones, Paine, MacMillan, Messrs. Abbot, Posey, McCain, Horner.

1a. COMPOSITION.

A prerequisite of English 1 for Freshmen who need additional drill in the mechanics of writing. In the case of Freshmen required to take this course, it will take the place of an elective course. One hour weekly is given to oral English. Intensive and extensive reading. Weekly conferences. *Six hours a week, every quarter.* Messrs. Adams (Chairman), McClamroch, Pochman, Bowne, Radoff, Stroup.

2. COMPOSITION AND LITERATURE.

A continuation of English 1 for students in the pre-medical and pharmacy courses who do not need 1 A. Not open to others. *Five hours a week, spring quarter.* Professor Paine.

3-4-5. ENGLISH LITERATURE. Prerequisite, English 1.

Works representative of the different forms of literary expression prevailing from the time of Chaucer to the present are studied. English 3 consists of poetry; English 4, of prose fiction and the essay; English 5, of the drama. In all courses at least four hours a week extensive reading along lines suggested by the instructor are required; in all, considerable emphasis is placed on composition. All Sophomores (except those in Engineering) are required to take two of these courses. The student may choose his two required courses; the third course may be counted as a Sophomore elective. *Five hours a week, fall, winter and spring quarters.* Professors Potter (Chairman), Foerster, Booker, Hibbard, Thrall, McKie, Taylor, Jones, Paine, MacMillan, Heffner, Messrs. Adams, McClamroch, Wright, Posey.

French

1-2. ELEMENTARY COURSE.

Essentials of French Grammar. Special drill in pronunciation. It is aimed to make this course as practical as possible, with much oral work. This course may be counted for credit by those only who fulfill the requirements for the degree in two other foreign languages and provided it is followed by French 3-4. Course 2 will be given in the fall also. *Five hours a week, fall and winter, or winter and spring quarters.* Professor Learned, Messrs. Haronian, Lyons, Smith, Wright, Wiley, Barker, Woodard.

Note.—No student is permitted to take French 1 or 2 and Spanish 1 or 2 at the same time.

3-4. CONTINUATION OF COURSE 1-2. Freshman and Sophomore elective.

Reading of modern French literature, frequent composition, and dictation. Course 4 will be given in the fall also. *Five hours a week, fall and winter, or winter and spring quarters.* Professors Huse, Staab, Messrs. Haronian, Lyons, Smith, Wiley, Wright, Barker.

German

1-2. ELEMENTARY COURSE.

Grammar: written and oral exercises; translation; sight reading. This course may be counted for credit toward the A.B. degree provided it is followed by three other German courses. It may be counted for credit as an elective by students who have selected for their language requirements two other foreign languages. *Five hours a week, every quarter.* Professors Metzenthin, Krumpelmann.

Mathematics

1. MATHEMATICAL ANALYSIS I. Required of Freshmen.

A study of functions and their graphs, the limit notion, graphical treatment of rates, mean ordinates, maximum and minimum, areas, etc.—an introduction to the notions of the differential and integral calculus. Graphical solution of equations. *Five hours a week, every quarter.* Professors Henderson, Lasley, Mackie, Browne, Linker, Hill, Messrs. Hoyle, Abernethy, Curlee, Bush, Garner, Bullock, Fortescue.

2. MATHEMATICAL ANALYSIS II. Required of Freshmen.

Solution of right and oblique triangles with applications. Logarithms and their application to computation. Solution of equations. Trigonometric analysis, series, permutations, combinations, complex numbers. *Five hours a week, every quarter.* Professors Henderson, Lasley, Mackie, Browne, Linker, Hill, Messrs. Hoyle, Abernethy, Curlee, Bush, Garner, Bullock Fortescue.

Physics

1. GENERAL PHYSICS. PART 1. Sophomore, Junior, and Senior elective. Prerequisite, Mathematics 1-2, but may be elected in the winter quarter by Freshmen who are taking Mathematics 2, and have attained a grade of at least B in Mathematics 1.

Mechanics of solids, liquids, and gases; sound and heat. Lectures; problems; laboratory work. *Five lectures and two laboratory hours a week, fall or winter quarter. Laboratory fee, $2.50.* Professors Patterson, Stuhlman, Plyler, Mr. Collins.

2. GENERAL PHYSICS. PART 2. Sophomore, Junior, and Senior elective. Prerequisite, Mathematics 1-2 and Physics 1.

Light, Electricity, and Magnetism. Lectures; problems; laboratory work. *Four lectures and four laboratory hours a week, winter or spring quarter. Laboratory fee, $4.00.* Professors Patterson, Stuhlman, Plyler, Mr. Collins.

Manning Hall

Home of the School of Law